Trend Study 16C-5-02

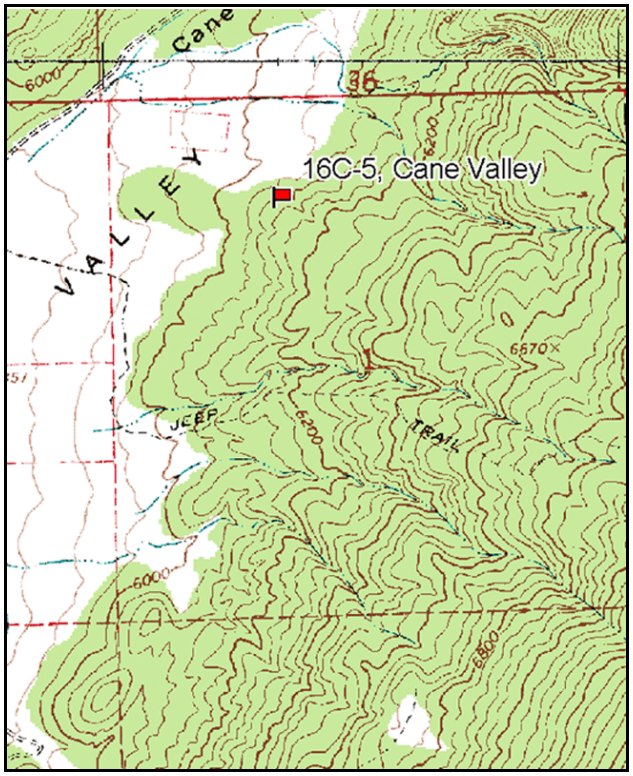
Study site name: Cane Valley . Vegetation type: Chained, Seeded P-J .

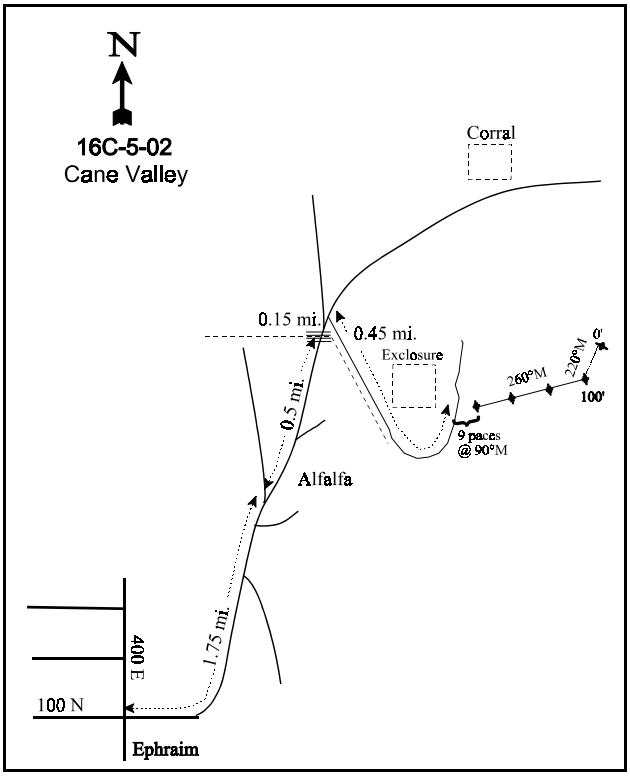
Compass bearing: frequency baseline 220 degrees magnetic (lines 2-4 @ 260°M).

Frequency belt placement: line 1 (11 & 95ft), line 2 (71ft), line 3 (59ft), line 4 (34ft).

LOCATION DESCRIPTION

From the intersection of 400 East and 100 North in Ephraim, proceed up 100 North for 1.75 miles. The pavement will end and the road will head in a northerly direction. At 1.75 miles the road will fork, stay right. Proceed up road for an additional 0.50 miles until you come to a cattleguard where a fence crosses the road. At this point the road forks twice. Take the road to the right for 0.15 miles. Turn right and follow along the fence in a southeasterly direction for 0.25 miles to an exclosure on the east side of the road. From the exclosure, continue left up the road for 0.2 miles where the 400-foot stake is 50 feet east of the road.





Map Name: Ephraim

Diagrammatic Sketch

Township 17S , Range 3E , Section 1

GPS: NAD 27, UTM 12S 4357864 N 453877 E

DISCUSSION

Cane Valley - Trend Study No. 16C-5

This study monitors a chained and seeded juniper site east of Ephraim. The juniper slopes above Cane Valley were two-way chained and aerial seeded in 1982, including 650 acres of Division land. The trend study is located in the center of the chained area on a west facing, 30% slope at an elevation of 6,100 feet. Big game use is moderate on the site. Pellet group transect data collected in 2002 estimated 76 deer days use/acre (187 ddu/ha) and 25 elk days use/acre (61 edu/ha). Several domestic sheep pellet groups were also sampled in the transect in 2002 (13 sheep days use/acre, 31 sdu/ha). Sheep are grazed on private land adjacent to the Division land. Chukar partridge, mourning doves, and rabbits have also been observed on the site. A spring about 200 yards north of the site provides a permanent water source for the area.

Like the chaining at Willow Creek (16C-2), this treatment is an Upland Shallow Shale juniper-pinyon range site. This type of site is dominated by juniper, usually with an understory of 20% (by weight) grasses, 5% forbs and 10% shrubs. Soil at the site is moderately deep with an effective rooting depth estimated at 14 inches. Soils are clay to clay loam in texture and slightly alkaline in reactivity (pH = 7.4). Erosion hazard is commonly severe on these Atepic Association soils, and sheet erosion was active on the site before the treatment. With abundant herbaceous cover following the chaining and seeding treatment, there is little sign of erosion at the present time. There are large gullies on both sides of the study that are not currently active. Vegetation and litter cover averaged about 36% each in 2002, a common level for chainings. Percent bare soil had increased between 1989 and 1997 to 21%, but declined to 15% in 2002. An erosion condition class assessment was determined as stable in 2002.

Palatable browse forage is limited on the site due to poor establishment following seeding. Serviceberry, four-wing saltbush, mountain big sagebrush, winterfat, white rubber rabbitbrush, and bitterbrush all occur on or around the site in densities lower than 100 plants/acre. All of these species show moderate to heavy use. None of the preferred browse had any seedling or young in their populations in 2002. Average leader growth on mountain big sagebrush was estimated at 2 inches in 2002. Young juniper appear to be quickly increasing in size. Juniper cover doubled between 1997 and 2002, and it made up 64% of the total browse cover in 2002. Juniper density was estimated at 343 trees/acre from point-center quarter data in 2002. Low rabbitbrush followed by broom snakeweed are the most abundant species in terms of density.

Perennial grasses provide the bulk of the forage on this site, and contribute over one-half of the total vegetation cover. Both native and introduced species are present with three wheatgrass species, bluebunch, intermediate, and crested, being the most abundant. Bluebunch wheatgrass significantly increased in nested frequency between 1997 and 2002, while intermediate and crested remained stable. Other grasses that have been sampled on the site include orchard grass, Russian wildrye, Indian ricegrass, mutton bluegrass, Sandberg bluegrass, and bottlebrush squirreltail. Sum of nested frequency of all perennial grasses declined by 13% between 1997 and 2002. Annual species, specifically cheatgrass, were infrequent in 1997, and were not sampled at all in 2002.

Forbs are moderately diverse with low growing species being the most abundant. Rock goldenrod, Hoods phlox, stemless goldenweed, and Fendler sandwort are the most abundant perennial species. Annual forbs are infrequent, with bur buttercup being the most common. Two important seeded forbs, small burnet and alfalfa were not sampled in 2002. Sum of nested frequency of perennial forbs declined by 14% in 2002. Declines in nested frequency values for grasses and forbs in 2002 is due to drought.

1989 APPARENT TREND ASSESSMENT

The treated area provides abundant herbaceous forage for spring and fall use, but there are restricted limits to cover with little preferred browse for winter range. The site appears to be quickly returning to dominance of juniper cover. The lack of good quantities of preferred browse indicates a downward trend for deer winter range. Soil trend appears down as excessive erosion continues.

1997 TREND ASSESSMENT

The trend for soil is stable. There is no sign of erosion at this time, especially with the very high proportion of cover provided by the herbaceous species. The trend for preferred browse is down because there is little preferred browse on the site. Most cover (forage) provided by browse species is from low rabbitbrush (51%) and juniper (48%). Trend for the herbaceous understory is stable, with nearly no change in the sum of nested frequency values for perennial grasses and forbs.

TREND ASSESSMENT
soil - stable (3)
browse - down (1)
herbaceous understory - stable (3)

2002 TREND ASSESSMENT

Trend for soils is stable. Percent bare soil declined, and vegetation and litter cover remain abundant and minimize erosion. Trend for browse is stable, but preferred forage species are limited. Preferred species are present in densities lower than 100 plants/acre, and all show moderate to heavy use as wintering animals key on individual plants. None of the forage species showed any reproduction in 2002, so population increases are not likely in the near future. Juniper continues to increase and a retreatment project may need to be considered. The herbaceous understory is dominated by perennial grasses which slightly decreased (13%) in sum of nested frequency in 2002 with drought. Even with the decrease in overall frequency, the most abundant species bluebunch wheatgrass, significantly increased in nested frequency. Intermediate wheatgrass, which is second in abundance to bluebunch, decreased slightly in 2002, but not significantly. Forbs also declined in sum of nested frequency overall, but forbs provide less than 10% of the total cover on the site. Trend for the herbaceous component is slightly down, but will improve with better precipitation.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Herd unit 16C, Study no: 5

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'89	'97	'02	'89	'97	'02	'97	'02
G	Agropyron cristatum	$_{a}$5	$_{b}$18	$_{ab}$20	3	10	8	.85	1.54
G	Agropyron intermedium	$_{a}$18	$_{b}$117	$_{b}$91	8	38	33	3.94	4.74
G	Agropyron spicatum	$_{a}$61	$_{b}$118	$_{c}$162	26	44	57	7.21	12.67
G	Bromus japonicus (a)	-	2	-	-	1	-	.00	-
G	Bromus tectorum (a)	-	$_{b}$33	$_{a}$-	-	15	-	.15	-
G	Dactylis glomerata	$_{a}$3	$_{b}$23	$_{a}$3	3	11	1	.64	.03
G	Elymus junceus	1	2	4	1	1	2	.15	.18
G	Oryzopsis hymenoides	$_{b}$47	$_{ab}$30	$_{a}$10	22	16	5	.95	.26
G	Poa fendleriana	7	1	4	3	1	2	.03	.03
G	Poa secunda	$_{b}$30	$_{a}$15	$_{a}$9	16	7	4	.58	.02
G	Sitanion hystrix	$_{c}$230	$_{b}$31	$_{a}$5	84	17	2	.56	.03

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'89	'97	'02	'89	'97	'02	'97	'02
Total for Annual Grasses		0	35	0	0	16	0	0.15	0
Total for Perennial Grasses		402	355	308	166	145	114	14.93	19.53
Total for Grasses		402	390	308	166	161	114	15.09	19.53
F	Alyssum alyssoides (a)	-	7	6	-	4	3	.02	.01
F	Antennaria rosea	-	6	4	-	3	2	.01	.01
F	Arabis spp.	1	3	-	1	1	-	.00	-
F	Arenaria fendleri	$_{a}$-	$_{b}$34	$_{b}$23	-	16	10	.10	.12
F	Astragalus spp.	$_{ab}$5	$_{b}$12	$_{a}$-	2	5	-	.05	-
F	Astragalus utahensis	-	5	2	-	2	1	.01	.00
F	Camelina microcarpa (a)	-	5	-	-	2	-	.01	-
F	Carduus nutans (a)	-	-	-	-	-	-	.03	-
F	Chaenactis douglasii	-	5	-	-	3	-	.04	-
F	Chenopodium fremontii (a)	-	3	-	-	1	-	.00	-
F	Cirsium spp.	7	1	-	3	1	-	.00	-
F	Convolvulus arvensis	8	-	-	2	-	-	-	-
F	Cryptantha spp.	$_{c}$33	$_{b}$8	$_{a}$-	17	6	-	.03	-
F	Erigeron spp.	-	1	-	-	1	-	.00	-
F	Eriogonum spp.	3	4	-	1	2	-	.03	-
F	Haplopappus acaulis	$_{a}$5	$_{b}$21	$_{b}$37	2	10	16	.61	.91
F	Lactuca serriola	12	-	-	4	-	-	-	-
F	Machaeranthera canescens	8	-	-	4	-	-	-	-
F	Medicago sativa	-	-	-	-	-	-	.01	-
F	Penstemon humilis	8	2	8	4	2	3	.01	.01
F	Petradoria pumila	$_{a}$1	$_{b}$30	$_{c}$45	1	13	16	1.82	1.54
F	Phlox hoodii	107	97	89	47	43	37	1.09	.78
F	Phlox longifolia	-	-	4	-	-	2	-	.03
F	Ranunculus testiculatus (a)	-	$_{b}$111	$_{a}$29	-	42	12	.65	.08
F	Sanguisorba minor	$_{b}$19	$_{a}$3	$_{a}$-	10	2	-	.03	-
F	Sphaeralcea coccinea	3	3	-	2	2	-	.01	-
F	Streptanthus cordatus	5	-	-	3	-	-	-	-
F	Trifolium douglasii	$_{a}$-	$_{b}$11	$_{a}$-	-	5	-	.07	-
F	Tragopogon dubius	$_{b}$31	$_{a}$3	$_{a}$1	19	1	1	.00	.00
Total for Annual Forbs		0	126	35	0	49	15	0.71	0.10
Total for Perennial Forbs		256	249	213	122	118	88	3.99	3.43
Total for Forbs		256	375	248	122	167	103	4.70	3.53

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 16C, Study no: 5

Type	Species	Strip Frequency '97	Strip Frequency '02	Average Cover % '97	Average Cover % '02
B	Amelanchier utahensis	1	0	-	-
B	Artemisia tridentata vaseyana	2	3	-	-
B	Atriplex canescens	0	1	-	.03
B	Ceratoides lanata	5	3	.06	.04
B	Chrysothamnus depressus	2	0	-	-
B	Chrysothamnus nauseosus albicaulis	1	0	-	-
B	Chrysothamnus viscidiflorus stenophyllus	46	53	3.88	4.23
B	Ephedra viridis	0	1	-	-
B	Gutierrezia sarothrae	3	14	-	.84
B	Juniperus osteosperma	18	23	3.65	9.14
B	Purshia tridentata	2	2	-	-
B	Symphoricarpos oreophilus	0	0	-	-
Total for Browse		80	100	7.60	14.28

CANOPY COVER -- LINE INTERCEPT
Herd unit 16C, Study no: 5

Species	Percent Cover '97	Percent Cover '02
Artemisia tridentata vaseyana	-	.07
Ceratoides lanata	-	.02
Chrysothamnus viscidiflorus	-	3.92
Gutierrezia sarothrae	-	.17
Juniperus osteosperma	-	12.75
Purshia tridentata	-	.17

Key Browse Annual Leader Growth
Herd unit 16C , Study no: 5

Species	Average leader growth (in) '02
Artemisia tridentata vaseyana	2.0

Point-Quarter Tree Data
Herd unit 16C , Study no: 5

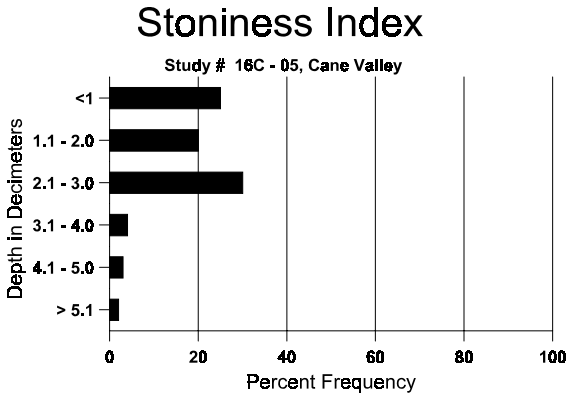
Species	Trees per Acre '02	Average diameter (in) '02
Juniperus osteosperma	343	2.2

BASIC COVER --
Herd unit 16C, Study no: 5

Cover Type	Nested Frequency		Average Cover %		
	'97	'02	'89	'97	'02
Vegetation	328	318	11.50	27.65	35.98
Rock	233	245	11.75	8.64	10.51
Pavement	261	300	15.25	6.38	15.90
Litter	391	378	48.50	33.02	35.79
Cryptogams	38	59	0	.27	1.75
Bare Ground	244	261	13.00	20.74	15.79

SOIL ANALYSIS DATA --
Herd Unit 16C, Study no: 05, Cane Valley

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.0	60.0 (14.7)	7.4	28.0	29.4	42.6	5.0	12.4	188.8	.4



PELLET GROUP FREQUENCY --
Herd unit 16C, Study no: 5

Type	Quadrat Frequency	
	'97	'02
Sheep	4	7
Rabbit	4	24
Elk	26	10
Deer	25	43
Cattle	1	-

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
'02	'02
165	13 (31)
-	-
322	25 (61)
983	76 (187)
-	-

BROWSE CHARACTERISTICS --
Herd unit 16C, Study no: 5

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier utahensis																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	7	0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	00%	00%	00%	
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	20		-
	'02	0		-

Artemisia tridentata vaseyana																		
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	1	1	-	-	-	-	-	-	-	2	-	-	-	40	12	11	2
	02	2	1	1	-	-	-	-	-	-	4	-	-	-	80	15	23	4
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	50%	00%	00%	+50%
'02	25%	25%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	40		-
	'02	80		-

Atriplex canescens																		
M	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	37	26	1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	61	77	0
	02	1	-	-	-	-	-	-	-	-	1	-	-	-	20	30	48	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	00%	00%	00%	
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	33	Dec:	-
	'97	0		-
	'02	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Ceratoides lanata																		
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	1	1	5	-	-	-	-	-	-	7	-	-	-	140	4	5	7
	02	1	1	2	-	-	-	-	-	-	4	-	-	-	80	7	10	4

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	14%	71%	00%	-43%
'02	25%	50%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	140		-
	'02	80		-

Chrysothamnus depressus																		
M	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	4	9	1
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	-	2
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	00%	00%	00%	+18%
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	33	Dec:	-
	'97	40		-
	'02	0		-

Chrysothamnus nauseosus albicaulis																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	15	17	0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	8	9	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	00%	00%	00%	
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	20		-
	'02	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus stenophyllus																		
S	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	28	-	-	-	-	-	-	-	-	28	-	-	-	560			28
	02	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
M	89	16	-	-	-	-	-	-	-	-	16	-	-	-	533	8	10	16
	97	142	12	-	-	-	-	-	-	-	154	-	-	-	3080	11	16	154
	02	207	10	-	-	-	-	-	-	-	217	-	-	-	4340	8	15	217
D	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	14	6	1	-	2	-	-	-	-	22	-	-	1	460			23
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	160			8

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	+84%
'97	07%	00%	00%	+26%
'02	07%	.40%	.40%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	566	Dec:	0%
	'97	3640		0%
	'02	4920		9%

Ephedra viridis																		
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	-	-	1	-	-	-	-	-	-	1	-	-	-	20	5	4	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	00%	00%	00%	
'02	00%	100%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	0		-
	'02	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
M	89	10	-	-	-	-	-	-	-	-	10	-	-	-	333	9	12	10
	97	5	-	-	-	-	-	-	-	-	5	-	-	-	100	6	6	5
	02	40	-	-	-	-	-	-	-	-	40	-	-	-	800	7	9	40
D	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	-73%
'97	00%	00%	00%	+88%
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	366	Dec:	9%
	'97	100		0%
	'02	860		7%

Juniperus osteosperma																		
S	89	4	-	-	-	-	-	-	-	-	4	-	-	-	133			4
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	89	7	-	-	-	-	-	-	-	-	7	-	-	-	233			7
	97	11	-	-	-	-	-	1	-	-	12	-	-	-	240			12
	02	4	-	1	-	-	-	-	-	-	5	-	-	-	100			5
M	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33	71	52	1
	97	5	-	-	1	-	-	1	-	-	7	-	-	-	140	-	-	7
	02	16	-	-	-	-	-	-	3	-	19	-	-	-	380	-	-	19
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	+30%
'97	00%	00%	00%	+21%
'02	00%	04%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	266	Dec:	-
	'97	380		-
	'02	480		-

Purshia tridentata																		
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	2	-	-	-	-	-	-	2	-	-	-	40	6	14	2
	02	-	-	-	-	-	2	-	-	-	2	-	-	-	40	8	17	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'89	00%	00%	00%	
'97	00%	100%	00%	+ 0%
'02	00%	100%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	40		-
	'02	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Symphoricarpos oreophilus																		
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	10	21	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'89	00%	00%	00%
'97	00%	00%	00%
'02	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'89	0	Dec:	-
	'97	0		-
	'02	0		-